the principle of constructing floating breakwaters, for which he was last year rewarded by the Society, is correct. The following, which was continued in the communication above alluded to, is a literal translation of a description of the Port of Pisa frum Claudius Rutilius, an ancient writer and member of an illustrious family at Rome:—

"The harbour is celebrated as the emporium of Pisa, and for its marine riches. The appearance of the place is remarkable, for the coast is an open one, and exposed to every wind; there are no promontories to protect it from storms; but a long sea-weed rises from the bottom of the sea, which defends it without injuring the vessels which pass over and through it, and yet is sufficient, by rising and falling with the waves, to abate their fury, and to prevent their rolling in from the sea in dangerous masses.

No. XXX.

ON THE MANAGEMENT OF BEES.

By the Secretary.

Continued May 15th, 1844.

SIR J. JOHN GUEST, BART. M.P. V.P. IN THE CHAIR.

On the evenings of the 17th April and 15th May, the secretary submitted to the Society the interesting subject of the management of bees, the chief materials for which were furnished by Mr. Milton, Mr. Sholl, and Mr. Neighbour, from whom were received various hives and models to illustrate the subject. The Society's repository also supplied several models, and their volumes much valuable and useful information.

The first accounts of bees which Mr. Milton has dis-

covered are contained in the writings of Varro, Pliny, Columella, and others. By Columella, who was a celebrated writer on husbandry in the reign of Claudius Cæsar, the subject is treated at considerable length; he has, in fact, embodied all that had been written on the subject before his time. The directions which he gives with regard to the choice of situation, and the requisite care and attention necessary to be observed, are worthy the attention of every apiarian of the present day. We find that in this country, however, all his remarks are not quite applicable; but we must take into consideration that the quantity of honey and wax was in those days considered of more consequence than their quality, also that the writers already mentioned lived in climates differing essentially from that of England. Virgil has inspired every lover of bees by his elegant and classic description of the habits and customs of the apiarian tribe in his fourth Georgic. And the following extracts are from Mr. Ring's translation, published in 1820.

The proper situation is first pointed out thus :—

" First for thy bees a peaceful station find,
Secure from storms and all access of wind,
Where no rude sheep the verdant lawn shall tread,
No goat shall wanton o'er the flowery mead :
No painted lizard must approach the ground,
Nor birds intrude,—

Let mossy fountains, and a purling stream,
And trees to shelter from the sultry beam,
The portal grace.

Round this abode let verdant cassia bloom,
And thyme and savory breathe a rich perfume;

Let mingled fragrance every valley fill,
And beds of vi'lets drink the fresh'ning rill."

Next as to the construction of the hives :—

" Nor let the walls with needless fissure cleave,
Lest summer's heat, or winter's piercing cold,
Too much dissolve or freeze the liquid gold.
The bees, alike afraid of both extremes,
Employ soft wax to close the sever'd seams."

Then as to swarming :—

" Whene'er a swarm in summer shall be seen
Sublimely sailing through the blue serene,
Like dusky clouds, and floating on the wind
That slowly wafts their wond'rous length behind,
Contemplate well : they seek the shady bowers,
The crystal fountains and the fragrant flowers ;
Then strew sweet savours for the flying train,
Strew pounded balm and woodbines on the plain,
Strike tinkling brass, and let the cymbal sound,
To call from far the scattered swarms around.
So shall they light on their alluring seat,
And, led by nature, to the cells retreat.

But if uncertain of their course they fly
Through liquid air, and revel in the sky,
Disdain the hive, disdain their humble dome,
And the cold cells of their neglected home,
Forbid the fruitless pastime, and control
The vain delight of their inconstant soul,—
A task not arduous ; only clip the wings,
And check the bold excursions of their kings ;
Lure them with gardens grateful to the sight,
And let the breath of saffron blooms unite ;
Let every swain, who makes the hive his care,
Sweet thyme and pines from lofty mountains bear."

Then, as to obtaining the honey from the grand pavilion,—

" If you their grand pavilion would unseal,
And all their treasures to the light reveal,
First, holding water in your mouth, like rain
With sudden effort sprinkle it again;
Then to the cells the sable tenants drive
With hostile smoke, and fumigate the hive.
Twice in each year they squeeze the pregnant comb,
And twice they bring the joyful harvest home."

Looking to the cruelty of thus taking the honey, the apiarian is thus warned:—

" If an unfriendly season you presage,
And hoary winter comes in all his rage,
Oh, spare the spoils, and to the pining brood,
In pity, leave them only future food!"

As to getting rid of vermin:—

" Yet who will fumes of healing thyme delay,
Or doubt to pare superfluous wax away?
There lizards prey, conceal'd from human sight,
And beetles lodge, and shun detecting light;
Or at his banquet sits the lazy drone,
And reaps the fruit of labours not his own;
Or the fierce hornet sounds the dread alarms,
And joins in combat with unequal arms;
There hungry moths, a direful race, abound."

The following translation from Varro, in his " De Re Rustica," b. iii. chap. 16, is curious, and worthy of being known even at the present day:—

" Of the fruit or profit, I have not only a witness, who says he lets out his bees for five thousand pounds of

honey by the year, but also our friend Varro, who had with him in Spain two rich brothers, soldiers, to whom their father left a small country-house, and a little field of about one acre near to the house; they formed an apiary, and also a garden, which was planted with thyme, cytisus, and balm. Taking one year with another, their profit from bee-keeping never amounted to less than ten thousand sesterces," equal to 83*l.* 6*s.* 8*d.* of English money.

About the sixteenth century the subject of bees attracted the attention of many persons in various parts of Europe, particularly the authors of "Maison Rustique," in 1529, whose work was translated into English by several persons, Gervase Markham, Lawson, Stephens, Sufflet, and others. In Italy, Rucellai, a poet of distinction, produced, in 1539, a considerable sensation by his classic poem "Api." Following these, we find in England Mr. Thomas Hyll, Edmund Southorn, and two or three others of less note. In 1609, Dr. Charles Butler, of Magdalen Hall, Oxford, was engaged upon the subject; he published the "Feminine Monarchie," a small work written in a humorous style, but containing many original remarks, and some very correct observations on the instinct and habits of bees: he has been styled the father of English apiarians. In 1655, Mr. S. Hartlib, in a series of letters addressed to Mr. Mew, a clergyman in Gloucestershire, excited attention by calling on all persons who kept bees to examine their works through glass hives and boxes. In this little work Mr. Milton was agreeably surprised to find that our great architect Sir C. Wren had been engaged upon the subject of bees, and has left us a representation of his box-hive. In the same book there is a plate of Dr. Brown's box-hive. Sir

Christopher Wren's hive of 1654 consisted of three octagonal boxes of similar shape and size, each having a hole in the top, which is similar in each box; there is a cover (the same for each top) turning on a pin, and a wire to close the opening by drawing the cover over it when necessary. The doorways may be opened or closed at pleasure by small slides. The upper edges of each box are sloped away convexly, and the bottom edges concavely, that either box may fit into the other. In the sides immediately opposite to those containing the doors are fixed glass for windows, having shutters hung on the outside with locks, so that the apiarian may view the interior when required. Each box is lined with rush mat. The whole stands in a case of stone.

It is to be observed, that Dr. Butler and all before his time used only the common hives made either with reeds or straw; these are the first hives, therefore, recorded by which the works of the bees could be seen during the time they were collecting materials, honey, &c. Soon after, there appeared to be a general inquiry on the subject, possibly produced by Maraldi, in France, and also by Swammerdam, in Holland. These great naturalists made discoveries that seem to have been overlooked in the inquiries of their predecessors. Again, in 1675, Dr. Gedde in this country made improvements in box-hives; then followed Dr. Warder, in 1680, and the Rev. John Thorley, in 1744: in all these box-hives there is evidence of considerable mechanical improvement being effected in their construction; in their adaptation, however, to the habits of the bee there is but little to approve of. In 1756, the Rev. S. White introduced a new system, that of working the bees in boxes placed side by side, or collaterally; and next we hear of a lady in Switzerland,

Madame Vicat, using boxes upon the same plan; that lady also introduced into her boxes ventilation and a thermometer: there is not any difference between the boxes used upon this plan and those of Mr. White.

In 1763, Sir Charles Whitworth presented to the Society an apparatus invented by the Rev. John Thorley, of Oxford, of which the following is a description, and this apparatus is still in the Society's collection of models:—

It consists of an octagonal box of wood, having within two cross perches for the bees to attach the comb to at the bottom; on one side is the entrance, and in the top is an opening, with a slide to close it when necessary. On the top of the octagonal box is placed a straw hive with an opening in it; and above is placed a glass apartment, which it is requisite to cover over with a straw case, or otherwise.

"When," says Mr. Thorley, "the glass is completely filled with honey, a tin plate is to be placed between it and the hive or box; in half an hour the glass may be removed with safety, the bees remaining within it will readily go to their companions. A complete apparatus for the purposes above mentioned may be seen at the Society's office in the Strand."

In 1765, the Society offered a premium for preserving the lives of bees, and the words of the advertisement are as follows:—"Whereas the usual method of saving the honey from stocks or hives is by destroying the bees, and whereas it is found by experience that the honey and wax may be obtained and the bees preserved at the same time, by which much larger quantities of both wax and honey are collected, the Society will give a sum, not exceeding 200*l.* for collecting wax and preserving the lives of the bees, in the following proportion. To every person

who shall collect from stocks of bees, his own property, within the year 1767, ten pounds of clear merchantable wax, without destroying the bees, leaving a sufficient quantity of honey for their winter sustenance, 5*l.*

"But, in case there should be above forty claimants, then the sum of 200*l.* shall be distributed among the candidates in proportion to the number of claimants."

Thomson, in his "Autumn," has beautifully described the cruel practice of destroying bees :—

"Ah, see, where robb'd and murder'd in that pit,
Lies the still heaving hive! At evening snatch'd,
Beneath the cloud of guilt-concealing night,
And fix'd o'er sulphur: while, not dreaming ill,
The happy people, in their waxen cells
Sat tending public cares, and planning schemes
Of temperance for winter poor, rejoiced
To mark, full flowing round, their copious stores.
Sudden the dark oppressive steam ascends;
And, used to milder scents, the tender race,
By thousands, tumble from their honied domes
Convolved, and agonising in the dust.
And was it then for this you roamed the spring
Intent from flower to flower?—for this you toil'd
Ceaseless the burning summer heats away?
For this in autumn search'd the blooming waste,
Nor lost one sunny gleam?—for this sad fate?
Oh, man! tyrannic lord! how long—how long
Shall prostrate Nature groan beneath your rage,
Awaiting renovation?—when oblig'd,
Must you destroy? Of their ambrosial food
Can you not borrow, and, in just return,
Afford them shelter from the wintry winds?"

The notice which this Society took, about the year 1765, of the importance of saving the hives of bees, caused Mr. John Mills, who was a fellow of the Royal Society, to write an essay on the subject, which he inscribed to the members of this excellent institution.

The Society's Silver Ceres Medal was presented to Isaac Espinasse, Esq., in 1818, for his method of managing bees. Mr. Espinasse lived at Bexley, in Kent, in the Vale of Cray, within a mile of which, to the east, is Dartford Heath, while Bexley Heath is two and a half miles to the north-west, affording abundance of pabulum for the bees in the blossoms of the heath, furze, and wild thyme. For eighteen years previously to receiving the Society's medal, Mr. Espinasse had been master of a large stock of bees, which he had watched, observed, and studied, and had protected from every thing that could injure them.

"Those who are unacquainted," observes Mr. Espinasse, "with the insect suppose that he possesses the fee-simple of every flower. It is very far otherwise, and when poetry makes it light upon a rose, and inhale its sweets, the truth is, it never sucks it at all, or many other flowers, in fact, all whose cups are so deep that its sucker cannot reach the bottom of it, where the honey is deposited."

Mr. Espinasse found lemon thyme peculiarly grateful to his bees, and, therefore, had it abundantly planted in his garden.

"Every bee-house," continues Mr. Espinasse, "should be so constructed that the hives may be brought forward or pushed back, as the weather serves. In summer they cannot be brought too far forward into the light and

heat, which rouses them into life and stimulates their industry, nor, in winter, be too far removed from the extreme wet and cold.

"The bee-house should open by folding-doors at the back, by which every hive can be easily got at for any purpose required. The floors should be made accurately level, for the purpose of feeding the bees if necessary.

"Of all the numerous enemies which bees have to encounter the most daring is the wasp."

The mode of closing the entrance to the hive, against the admission of the rapacious wasp, as adopted by Mr. Espinasse, is worthy of notice. It consists of two small pieces of wood, an inch and a half in length, and one-sixth of an inch broad, and of the same thickness. There is a groove in each to receive a sliding piece of board about one inch and a quarter wide, in which are cut two small doors wide enough to admit one bee at a time only.

The two pieces of wood are fixed to the side of the opening cut in the hive itself, and fastened thereto by large pins. The sliding piece is then placed in the grooves, and raised up or lowered at pleasure.

Mr. Espinasse was a decided advocate for feeding bees during the winter, having ascertained the utility and advantage of the practice.

The composition which he recommends, from experience, is moist sugar and sweet beer, boiled to the consistence of treacle. This is placed in a small trough or scoop, made of wood.

Mr. Espinasse had, in 1817, fifty-six stocks of bees, previously to his beginning to take them in August of that year.

"With regard to the common straw-hive," observes

Mr. Milton, "it is well known that care must be taken to make these hives of good and clean straw, and that they are also of a suitable thickness; for some are made so thin and loose that it takes the bees two or three days of their valuable time to render them fit for use."

"All the hives should be as nearly of the same size as possible, say about thirteen inches in diameter in the clear, and ten inches high inside. The old plan of rubbing the inside of the hives with beer and sugar, or with honey, is beneficial. It entices and amuses the bees, and they take to them more quickly. Some put sticks across the inside, thinking they strengthen the combs, which is true; but then the bees build in so many pieces, and so irregularly, that when you wish to take out some of the combs you cannot fail to break them."

"A good swarm will, or ought, to fill the hive to within two or three rims of the bottom."

"When the hive is placed where it is intended to remain, it must be sheltered from the rain and wind, for, if once the wet penetrates the hives, it affects the combs, and the bees, getting a distaste for their home, will work but slowly, and, not unfrequently, will desert it altogether. On the contrary, if they have a hive to their liking, they will soon furnish it with comb and honey."

"The resting-board should project several inches in front of the hive, in order to allow the bees plenty of space to alight upon, and the hives should be secured to the stand, so that in case of accident they may not be thrown down."

Milton's straw hive, with revolving top, is of simple construction and easy management. It has two boards on the top, with corresponding holes in each, which can be opened or closed at pleasure by turning one of the

boards. It is made to support four bell-shaped glasses on the top, which are readily removed when filled. It also keeps the bees more secure during the months they are not occupied in providing for the support of the hive. Some hives similar to these were used by Wildman, but they were not furnished with the revolving-top.

In the year 1826, the Society of Arts awarded to Mr. Milton their Silver Ceres Medal, for the invention of his double revolving-top. He has always used this form, and is not aware of any straw hive that offers so many advantages. It requires neither smoke nor fumes of any kind, nor is there any necessity to drive the bees. When it is required to get them from another hive into this, the former is simply to be placed upon the top, taking care that there may be but one entrance. The bees will then go down into the hive without using any irritating means.

By these revolving hives the finest honey is obtained at all times of the honey-gathering season; they are also useful for working the bees out of old and decayed hives. Their construction obviates the necessity for smoking or driving, or, in short, of using any but the most gentle means. It is desirable to impress this upon the mind of the apiarian, for, however much he may be able to control these tiny insects, he must do so as gently as possible. Mr. Milton has found by experience that the most trivial alterations, if done during certain stages of the brood, will totally change, nay, perhaps entirely destroy, their means of perpetuating their species.

A given number of days is required by them to produce young. This, also, depends in a great measure upon the temperature of the hive, as well as upon the attention of the bees; therefore, if a sudden disturbance

or alteration is made, it may possibly interfere with the regularity of the process. One of Mr. Milton's experiments so disturbed the economy of the hive that only drones were produced.

To put a swarm into the hive, the board on the top is to be turned so as entirely to cover the holes in the one underneath, and the thumb-screw is to be tightened; then hive the swarm into it, and as soon as the bees are settled remove it where it is to remain permanently, whether in a garden or bee-house. The glasses should then be placed on, the thumb-screw loosened, and the upper board turned so that the holes may correspond with those in the lower board. Thus the bees will be admitted into the glasses, and will commence building combs.

The glasses should be connected to the hive with a little mortar; this keeps them firm. The bees always do this on the inside with a kind of gum or resin, which they apply for this and many other purposes.

The glasses should be kept covered with a common or straw hive for two or three days, without being disturbed. It is easily known when the glasses are full of honey by the cells being sealed. When you wish to take away any of the full glasses it is not requisite to turn the board, but with a knife remove the plaster outside the glass, and then put the knife underneath, and loosen it from the board; take it away on a zinc plate, placing an empty glass over the whole immediately. The middle of a fine day is the best time for removing full glasses. The second glasses are often more speedily filled than the first, sometimes even in a few days. It is not desirable in most seasons to take away honey in this manner after the end of July, because the remaining part of the season sometimes proves unfavourable for the bees, and prevents

them from procuring a sufficiency of honey for their winter support: therefore, about this time, remove all the glasses and caps, turn the board, and fix the screw, this will leave them in safety for the winter months. Glasses that are only partly filled with comb should be carefully put by, to be again placed over the holes in the following April.

Should the bees require feeding, these partly filled glasses will be found very useful for the purpose. April is the usual month in which to commence placing on glasses and caps. The stock-hive is at this period full of combs and brood, and, if the season proves favourable, you may expect to have your glasses filled several times, and, likewise, the same every corresponding season. The management of hives in this manner does not hinder the bees from swarming, and the number of the hives can be increased.

Honey obtained by means of glasses fresh from the hive will be of the finest quality and perfectly free from young brood. It will possess the flavour and fragrance of the flowers then in blossom; it will be clear and far superior to that taken from the common hives. An essential quality possessed by this hive is, that honey can be taken at pleasure without injuring the bees or resorting to that painful process of partially killing them by fumigation, which also deteriorates the quality of the honey.

Box-Hive, with Interior Boxes.

This, like most other hives, has undergone a great many changes before it could be brought to its present state of efficiency. It is now acknowledged, and most justly, as the best hive for practical utility.

Its form is that of a square, having angles inside, which nearly complete a hexagon. It is divided through the middle horizontally, by a board on which rest four small boxes for the bees to work in ; these can be readily removed when filled. It forms a complete dwelling for the bees, and the whole is under lock and key for security.

The Huber-Hive.

The Huber, or leaf-hive, combines all that is deemed requisite for affording the apiarian opportunity of pursuing his researches in order to discover the hidden secrets of this wonderful tribe.

It is composed of eight vertical frames, the material of which is cedar-wood of suitable thickness. The frames are about ten inches in height, nine in depth, and one and a quarter in width, the two centre ones being rather wider than the rest ; the whole is very exact, and its proportion in accordance with the habits of the insect. Each frame has a pair of hinges, in the whole there are twenty-four pairs. There is a glass window in each end and two smaller ones in the centre, also openings in the top for the purpose of withdrawing humidity ; these openings also afford opportunity of working the bees in glasses and of feeding them when necessary. By means of the windows and the facility with which the frames are opened, the interior of the hive may be inspected when in full operation.

French naturalists are justly proud of the indefatigable Huber; they regard him as the most accurate depictor of the domestic economy of the bee. He assisted to remove many vulgar errors, and his discoveries and statements have often been confirmed, and are at this time well established.

The Unicomb Observatory Hive.

The means of obtaining this hive were afforded to Mr. Milton by Mr. Jesse, author of that interesting work, "Gleanings in Natural History."

This ingeniously constructed hive, perhaps more than any other, affords the apiarian an opportunity of frequently seeing the queen bee. It is composed of two distinct parts, the lower of which is a box with hexagonal sides, having a window in the back; the top of the box is flat, and has an opening, or round hole, in the centre. Upon this rests the other part, which is in shape like a cross, and is made to revolve. It is so exact in proportion that it enables, or rather compels, the bees to build one uniform comb in each of the four parts of the cross. Upon the upper surface of this cross there are five holes, in order that bell-shaped glasses may be placed over them. This hive, when in full operation, affords a most pleasing sight; it may be deprived of the surplus honey with great ease.

Storified Box-Hive.

Storified box-hives have been constructed upon plans recommended by Mr. Keys, of Bee Hall, Herefordshire, author of "The Bee-Master's Farewell," and Dr. Bevan. These box-hives are intended to be placed one upon another: a set consists of three boxes. Each box is made about eleven inches square, and seven inches deep on the inside, the thickness of the wood being one inch. There are three windows in each, the side over the entrance being left blank. Each box is provided with a movable board, also on the top of each box are six

movable bars; the boards are to be placed one between each box, which will prevent the bees from uniting the combs of one box to those of another; the upper, or top board, is so prepared that, by moving it a little, glasses can be put on the top if required. To take away a box when full (it must always be the uppermost) the same method is used as for a glass, or small hive, but, the boxes being much larger than glasses, a divider is used, and two would be more convenient; these dividers are plates of iron or zinc, stout enough to keep perfectly flat, which should be pushed underneath the top box, and left for about an hour. At the expiration of this time, if the bees in the lower boxes are quiet, you may safely take away your box, leaving one of the dividers; after you have taken away the box liberate the bees, and they gladly join their companions.

American Transparent Bee-Palace.

It is divided into three equal parts, and presents in appearance something like a collateral hexagon. The three parts have each an opening, thereby allowing the bees to pass freely from one chamber to another; on the top are placed three glass boxes to be filled with honey, which are removable at pleasure; there are glass windows in the sides and at each end, which admit of the whole of the interior being inspected while the bees are at work. A novel but very important feature in this hive is its peculiar entrance; this occupies the whole length of the underneath part, and, from the singular construction of the hive, it is very beneficial to the bees, as it materially assists them in keeping the hive clear of all extraneous

matter, at the same time allowing them to enter any part they choose, without having to go first into one part before they can pass into another.

Up to this period apiarians do not appear to have directed their attention to any systematic mode of ventilation in the hives, which is now considered by many essential.

Nutt's Improved Hive for the Humane Management of Honey-Bees

Consists of the pavilion, which is to be stocked by a swarm of bees: it is the middle box, and is similar to a cottage-hive. There are tin slides, or doors, at the ends of the pavilion, which must remain closed until the swarm nearly fills that compartment; if any symptoms of swarming should appear, the natural conclusion is a want of room, the sliding tin beneath the bell-glass is then to be drawn out, which will immediately admit of a new room being added for their use. But if by mistake the manager should draw up either of the collateral slides, the bees will refuse to go up into the glass compartments above, and will continue their works in the collateral box in preference, so well aware are they of the inconvenience attending the carrying of their treasures into an upper story; their natural movements have demonstrated this fact year after year. This materially assists ventilation, for by dividing the labours of the bee we purify their works. To provide a place of safety for the queen-bee suggested the propriety of this movement, because she requires a certain situation to carry on the work of propagation; she will not propagate her young whilst under the influence and command of human ingenuity, and altogether prefers the middle box either to the side boxes

or to the glass for her work. This reason is apparent: by the cylindrical ventilation-tins, the atmospheric air which is admitted so cools the temperature that they are not in the situation nature requires to bring the young larvæ to perfection; yet the collateral boxes can be kept at such a temperature as to make them desirable store-rooms for the treasured sweets: by this mode of management the necessity of swarming is avoided, and the hateful system of destruction is wholly abolished. A thermometer is used with this hive to regulate the temperature, and is placed in the middle compartment.

Neighbour's Improved Single Box-Hive

Consists of a box in which is to be put a swarm of bees, having a cover for bell-glass and a feeding-drawer. In this hive are placed a thermometer, which is a correct indicator at all seasons of the interior of the hive, and a ventilator to admit air between the bell-glass and stock, or parent hive, the advantages of which are that the bees may be for a longer period prevented from swarming, and the queen effectually prevented from depositing her eggs therein, so that this glass invariably is filled with combs of the most delicate colour and purest quality.

The respective merits of straw hives and boxes have been often the subject of discussion. Those of straw have a decided superiority over those of wood in their capability of maintaining an equable temperature, from the non-conducting material of which the former are constructed; but the latter are much more easily kept clean, are more durable, afford a greater facility for operating experimentally, and for studying the interesting habits of the inmates. Hives of wood will also admit of greater variety of form and structure than those made with straw.

Neighbour's Improved Cottage-Hive,

On which are worked five bell-glasses, is, in principle, similar to the single box-hive, from which a glass of the purest honey may be taken during the most vigorous period of the gathering season with the greatest facility. It has three windows in the lower hive, with a thermometer affixed to the centre one; the temperature of this hive can be easily reduced if required, by raising the ventilator on the top of the straw cover; this hive will be found to possess many practical advantages over the cottage-hives in ordinary use, and presents a tasteful appearance in the garden among foliage, either singly or in a row, and is preferred by many to wooden hives on the same plan on account of the material.

Neighbour's Ladies' Observatory-Hive

Is made of stout glass, and consists of a lower hive for the parent stock, with a glass above, which may be removed (as in ordinary hives on the humane system) as often as filled with the delicious treasure; it has a cover of straw, which protects the whole, and may be removed at pleasure. By this mode the lady apiarian may contemplate her favourites at leisure without disturbing them, and without the slightest danger of her being annoyed by them. In a short time the admission of light will not disturb them. The construction of this observatory-hive is admirably adapted for advancing, and it may be perfecting, the knowledge of the habits and economy of the honey-bee.

A conspicuous feature of these hives is that by a single movement may be effected the immediate separa-

tion of any part of the produce without danger or inconvenience.

Cottage Hives.

A cottage hive of the most simple and least expensive form, intended for the use of cottagers, consists of three hives, made of straw, with floor-board attached. It is recommended to the notice of those apiarians and clergymen who are desirous of setting their poorer neighbours an example in the way of keeping bees on the improved and humane principle.

Sholl's Hive.

Mr. Sholl's cottager's-hive may be thus described :— The stand is of wood, consisting of five pieces, which are so arranged that they may be taken to pieces readily if required, and put away in the hive to send it to a distance. A common American flour-barrel forms the outworks of the hive. The pavilion is formed of wood, and may be either square or circular, and is placed at the bottom of the barrel. It is furnished with a wire-gauze door, fixed in the bottom, which answers the purpose of a ventilator; two cross-bars are fixed at the top of the pavilion, to which the inhabitants attach the comb. The entrance to the pavilion is circular, and placed towards the top of it, as Mr. Sholl considers it advantageous to admit the bees there in preference to the bottom, as in most of the hives; to effect which a metal tube is carried through the wall of the house or barrel, which is furnished with a sliding shield at the outer entrance, also of metal, to keep them in when necessary : this slide is perforated so as to assist the ventilation.

The pavilion, which can be removed from the house

or barrel at pleasure, stands upon four legs, and is ventilated by the wire-gauze door before described. For the purpose of fully ventilating the space between the outer walls of the house or barrel, is another aperture furnished with wire-gauze. On the top of the pavilion is a folding partition by which it is entirely covered; this partition contains six or any greater number of circular apertures that may be required, to each of which is a plug of wood with a tin cover; each plug is attached to a string, which is secured to the side of the barrel, so that when the plugs are removed from the apertures they may not be lost. The use of these apertures is to admit the bees when necessary into the surplus cases above. A small window is fixed in the partition to ascertain the state of the bees at any time. These cases, six or more in number, are also constructed of thin wood, nearly fitting the sides of the barrel or house; each case is of a segmental form, and open at bottom to admit the bees, and is lighted by a small window at top. When the bees have filled the pavilion with honey, as far as possible, admission is afforded them to one or more of the surplus cases or additional apartments, in which they deposit new combs. The pavilion remains undisturbed so far as removing honey is concerned, the additional apartments being provided for that purpose. When a case is ascertained to be filled with honey, it is removed to a distance from the barrel, carefully turned on one side, and, the bees returning to the pavilion, the apartment may be entirely cleared of the honey accumulated, and another case may be immediately inserted in its place. It is readily ascertained which surplus apartment is occupied by the bees, as the admission-plug from the pavilion will be found placed on the top of it. The cover or roof of

the bee-house or barrel is hung with common hinges, and secured either by a common lock or padlock, and the whole may be formed and painted in any ornamental manner.

Mr. Sholl states his objects in this arrangement of hives to have been,—

1st. A system of self-acting ventilation, requiring little or no attention to regulate or keep it in order, by which the health and value of the bees are materially improved.

2d. The leaving to themselves the uninterrupted possession of their pavilion or hive for the purpose of breeding and food, by which the necessity of swarming is rendered unnecessary.

3rd. The taking their surplus produce of honey and wax without destroying them, or interruption to their working, as is already done in the arrangements of other expensive hives. And,

4th. The great economy and facility with which these advantages may be obtained by the humblest cottager, as any box or tub may be thus arranged at a small expense.

It may be remarked that, in a flour-barrel fitted up as described, Mr. Sholl brought over from America a swarm of bees, which are now in health and working in this country, and that at the distribution of rewards given by the Society in June last, his Royal Highness Prince Albert, the President, examined a working hive, which had been for some time on their premises in the Adelphi, and he has since ordered several hives of this construction, some of which are already in use at Windsor.